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ON THE HUDSON BAY EIDER

By L. L. SNYDER

In 1871, Sharpe[1] distinguished an American Eider Duck from *Somateria mollissima* of Europe naming it *S. dresseri*. He characterized the form in the following words: "To begin with the American Eider Duck is a very much finer bird than its European congener, and both male and female have the sickle-shaped inner secondaries more fully developed. The chief difference, however, lies in the bill, the form of which in each species is illustrated by the accompanying woodcuts.

"From these it will be seen that in *Somateria dresseri*, as I propose to name the American bird, the bare ridges running up from the nostril to the eye are very much broader, and also differ in being distinctly rugose. Again, the sea-green colour, which in *S. mollissima* is confined to the hinder portion of the auricular region and the nape, in *S. dresseri* extends along the cheeks and on the occipital line of feathers which part the hinder portion of the crown."

Sharpe's formal Latin description, which followed the remarks quoted above, adds that both the male and female of the American form are larger than *S. mollissima* but that the latter (*mollissima*) has a longer bill. No difference in colour, or tone, of females was noted.

In 1885 Bell[2] reported that *Somateria dresseri* was found by him "in various parts of Hudson's Strait, at Churchill and York Factory. Common on the East-main coast." It is probable that Bell used the name *dresseri* of Sharpe as being applicable to the eiders of northeastern North America, not because he had determined that all his observations pertained to eiders with broad frontal processes, etc. His two specimens (mentioned by Macoun[3]) were from Churchill. However, the first edition of the A.O.U. Check-List (1886) issued the year following Bell's report, did not include Hudson Bay or Hudson Strait within the range of either *S. mollissima* or *S. dresseri*.

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[1] On the American Eider Duck. Ann. and Mag. Nat. Hist., Ser. 4, 8: 51-53. 1871.

[2] Observations on the Geology, Mineralogy, Zoology and Botany of the Labrador Coast, Hudson's Strait and Bay. Geo. and Nat. Hist. Sur. and Mus. of Can. Report of Progress [for 1882, 3, 4]. 1885.

[3] Catalogue of Canadian Birds. Part I, pp. 104-5. 1900.

It was Ridgway[4] who first (1887) described a difference between the eider of our eastern Arctic and the typical form of Europe. He applied to the Arctic American form the name of Brehm (*Platypus*) *borealis*, evaluating its distinctness as racial. The second edition of the A.O.U. Check-List (1895) admitted the form and defined its summer range as "northeastern North America, including Greenland." The Eider Duck of more southern areas in North America was still regarded as a species (*S. dresseri*) and its breeding range was again stated to be the Atlantic region "from Maine to Labrador." Hudson Bay was not included.

The third edition of the Check-List (1910) presented no nomenclatural change but a more detailed statement of breeding range for the American form was given. The range of *S. m. borealis* was delineated as follows,—"Breeds from Ellesmere Land and both coasts of Greenland south to northwestern Hudson Bay and southern Ungava." The expanded statement of the range of *S. dresseri* was as follows,—"Breeds from southern Ungava and Newfoundland to southeastern Maine, and *on the southern half of Hudson Bay*."

Apparently it was Townsend[5] who first demonstrated that *borealis* and *dresseri* intergrade and that consequently these forms were distinct racially only. Briefly, the 1931 edition of the Check-List presents the current interpretation of these eiders as follows:

S. m. borealis (Brehm). Type locality, Greenland: Breeds on the coastal islands of Greenland and eastern Arctic islands, south on the Atlantic coast to Labrador (Hamilton Inlet) and Quebec.

S. m. dresseri Sharpe. Type locality, North America: Breeds on coastal islands of Labrador south of Hamilton Inlet, Newfoundland, eastern Quebec, Nova Scotia, and Maine; also, on Hudson Bay and James Bay, as far north as Southampton Island and Cape Fullerton.

The principal purpose of presenting the brief review given above has been to show that the type locality of *S. m. dresseri* can be restricted to the Atlantic area of North America. The form was not generally recognized as occurring on Hudson Bay in 1871 (the year *dresseri* was described), in fact, it was not generally attributed to that area until 1910.

In view of the stated range of the race *S. m. dresseri* the writer's interest was directed to the question as to whether or not regular contact was maintained between the population on Hudson Bay and that of the St. Lawrence-Atlantic region. On the face of it, an annual movement via Hudson Straits and the Labrador coast, through the range of *borealis*, seemed out of the question. As to an overland migration, there was no evidence on record in the literature. With one exception[6] this species of eider had not been known to occur in Ontario or interior Quebec.

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[4] A Manual of North American Birds, p. 109. Philadelphia, 1887.

[5] Notes on the Eider. Auk. **33**: 191-92. 1916.

Opportunity to inquire into the winter status of this eider has been afforded. During the summer of 1939, while visiting the James Bay region conversations with persons resident there and familiar with Hudson Bay region, at all seasons, disclosed that this eider is non-migratory. It winters off the Belcher Islands and probably elsewhere. Further verifying reports were secured later through the kindness of the Canadian National Parks Bureau of Ottawa. In a departmental report, on the east and south coasts of James Bay and the adjoining part of Hudson Bay together with adjacent islands, Major L. T. Burwash states that the species is present in winter. Natives informed him that the eider duck does not migrate south, that it spends the winter in the open water of Hudson Bay not many miles west of the Belcher Islands.

Further, the report of Sutton[7] concerning the wintering of *S. m. borealis* adjacent to Southampton Island, rather corroborates the evidence here presented for eiders found to the southward in Hudson Bay.

It appears evident then that there is no regular contact between the James and Hudson Bay eider duck population and that of the St. Lawrence-Atlantic region and therefore there has been no recent genetic mixture of these populations. Consequently differences between them might be expected. Comparisons of specimens from the two areas have been made and differences between them have been found. I wish here to express my thanks to Mr. P. A. Taverner for the use of specimens from the collection of the National Museum of Canada.

In making comparisons, specimens representing other races of the species have been used, namely, *borealis* from the American eastern Arctic to Greenland and *mollissima* from Europe. No examples of *faeroeensis* have been seen but in recording the descriptive details which follow it has been kept in mind that this race has been characterized as smaller than *mollissima* (and some authors add that it is darker). It has been concluded that the eider occupying most of Hudson Bay constitutes the most markedly differentiated race of the species. Since the name *dresseri* can be restricted to the form occupying the St. Lawrence-Atlantic region, a new name is here proposed for the race of Hudson Bay.

Somateria mollissima sedentaria, subsp. nov.

Type: Royal Ontario Museum of Zoology, No. 32.8.27.10; adult female (2 years old, plus); collected at Churchill, Manitoba (on Hudson Bay), on July 8, 1932 by Arthur C. Twomey.

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[6] The American Eider on the Niagara River. Can. Field-Nat., **51**: 59. 1937.

[7] The Exploration of Southampton Island, Hudson Bay, Memoirs of the Carnegie Museum, **12**: Part 2, Sect. 2, pp. 66-71. 1932.

Subspecific characters: Colour of the natal down, first winter plumage (both sexes), and the plumage of the adult female, paler than any other race; frontal processes of bill, particularly of the male, notably large and rounded terminally, unlike *borealis* and *mollissima*, similar to typical *dresseri* but averaging somewhat smaller; lateral, forward projection of the feather outline at base of upper mandible of both sexes terminates on a line approximately equal to the posterior edge of the nasal opening; wings, in both sexes, average longer than those of corresponding sex in other races.

Additional descriptive remarks: Not only is the tone of the plumages as mentioned above, paler but the colour tends, in general aspect, to be colder, more greyed and less tinged with reddish brown. In its paleness *sedentaria* is most closely approached by *borealis;* it is most unlike *dresseri* and *mollissima* (and probably *faeroeensis*). Plumage wear causes a divergence in appearance between *sedentaria* and the other races; the former acquires a paler, the others a darker, general aspect. With a rather limited number of pertinent specimens it was suggested that the eclipse feathers of the neck and upper breast of male *sedentaria* are paler in tone than eclipse feathers of other races.

Males of *sedentaria* which have attained the black and white plumage, show a narrow linear extension of the green wash on the white feather tips, from the back and sides of the head, to near the base of the bill. In this respect it is similar to *dresseri* and unlike the other races.

In the concise characterization of the subspecies *sedentaria*, given above, mention was made of the abbreviated extension of the lateral feathering at the base of the mandible, relative to the nostril. Since this character appears to be due to variation in the general conformation of the bill, it is rather difficult to express, though usually quite obvious and certainly useful in the identification of individuals. The method used to measure this character was as follows: One point of the dividers was held at the tip of the upper mandible and the instrument extended so that the opposite point reached the posterior rim of the nasal opening. Still holding the point at the tip of the mandible firmly, the other was carefully swung in an arch to the lateral projection of feathers and its point pricked into the integument. A plus or minus measurement could then be taken between the anchored point and the feather termination ("plus" = beyond or distal to the posterior nostril line; and "minus" = falling short of the posterior nostril line).

In both sexes of *sedentaria* the lateral point of feathers extends approximately to the posterior edge of the nostril. Several specimens showed this extension to be equal to this point. A few measurements fell short of it slightly (one was −1.25 mm.) and a few extended beyond (one was +2 mm.).

The race *borealis* was found to be most like *sedentaria* in this character but in that race, the character was less consistent. Specimens of the subspecies *dresseri* have exhibited a pronounced extension of the lateral feathering. It usually terminates well beyond (distal to) the line of the posterior edge of the nasal opening. The minimum extension measured was +1.75 mm. but the average of thirty-two adults was close to 4 mm. with a maximum of 7 mm. measured on a female. Although we are dealing with a very small measurement, its variation is more readily appreciated at a glance than might be assumed. The typical race, *mollissima*, has proved to be very similar to *dresseri* in respect to this character.

One further comment should be made respecting the lateral feathering at the base of the bill in this species. All specimens of the four races examined show that the feathering projects forward in a fairly acute angle and terminates rather in a point. In this respect *S. mollissima* differs from *S. v-nigra* which the writer regards as a fairly distinct species.

	Race	Wing	Culmen	Length of Process	Width of Process
Males	*sedentaria*	[8] 284-303 **(290.6)**	[9] 52-61.5 **(56.6)**	[9] 19-22.5 **(20.9)**	[9] 8.75-10.75 **(9.4)**
	dresseri	[15] 263-292 **(277.8)**	[15] 54-59.5 **(56.5)**	[15] 23.5-31.5 **(25.7)**	[15] 12-15.5 **(13.4)**
	borealis	[16] 256-289 **(273.9)**	[16] 46.5-56.5 **(50.5)**	[16] 17-22.5 **(19.2)**	[16] 3.5-7.5 **(4.8)**
	mollissima	[4] 272-281 **(277.5)**	[5] 48-53 **(51.4)**	[5] 14-22 **(19.9)**	[5] 3.25-6 **(4.9)**
Females	*sedentaria*	[4] 274-289 **(281.5)**	[5] 49.5-55.75 **(52.2)**	[5] 17.5-21.5 **(19.8)**	[5] 4.75-6.75 **(5.9)**
	dresseri	[17] 262-284 **(270.6)**	[17] 45.5-55.5 **(51.2)**	[17] 16-24 **(21)**	[17] 5-7.25 **(6.1)**
	borealis	[6] 259-278 **(267)**	[6] 44.75-47.25 **(45.8)**	[6] 14-21 **(17.1)**	[6] 3-4 **(3.4)**
	mollissima	[3] 256-267 **(262)**	[3] 47.75-58.5 **(52.9)**	[3] 15-18 **(16.75)**	[3] 2.5-4.25 **(3.6)**

No specimens of *borealis* examined, even those from the most westerly part of its range in Arctic America (Creswell Bay, Somerset Island) tended to show the rounded outline of *v.-nigra*. Incidentally, the ranges of the two forms apparently do not overlap. In respect to the wing size of *sedentaria*, it will be observed in the table below that the average is longer than that of the other races. This is of interest particularly since the race is non-migratory.

In the table of measurements, all given in millimetres, the wing measurement concerns the chord of the closed wing, taken from the anterior edge of the wrist joint to the tip of the longest primary. The culmen measurement was taken with dividers from the apex of the median frontal feathering to the tip of the nail. Although the Hudson Bay Eider has not been distinguished from the St. Lawrence-Atlantic race on the basis of culmen length the measurements are included to show the variation found within the species. The measurement of the frontal process was taken with dividers. The length concerns the distance from the apex of the median frontal feathering to the posterior end of one (usually the left) of the bare frontal processes. The width represents the span at the approximate middle between these two points. All the measurements included were from specimens in their second year or older. The figure in square brackets represents the number of measurements in each case; this is followed by the minimum and maximum; the average measurement is in parentheses.

Remarks on the distribution of sedentaria: Although it seems established that there is no contact between this subspecies of eider and *dresseri* in the St. Lawrence-Atlantic region, there are two racial characters found to be very nearly alike in the two forms. These are the large frontal processes of the bill and the extension of green bordering the white below the eye. These characters are not possessed by the race *borealis* which occupies the middle portion of the horse-shoe shaped range of the species in America. Although these characters may represent a parallel development they can also be regarded as evidence of an ancient contact by way of a marine connection between the St. Lawrence area and James Bay.

Sutton (loc. cit.) reported that the specimens he collected on Southampton did not show any intermingling between the race *borealis* and the eider found to the south on Hudson Bay. He therefore recorded the eider of that area as *borealis*. In an earlier paper[8] he remarks on a specimen taken on Mansel Island which lies just to the south of the mouth of Hudson Bay. It would seem from his description that this bird showed some tendencies toward the more southern form with the broad frontal processes.

With the information at hand it is evident that *sedentaria* occupies the main portion of Hudson Bay. Its northern limits of range appear to be approximately on a line drawn from Cape Fullerton on the northwest mainland eastward and south, below the large islands of Southampton, Coats and Mansel, to the east coast of the Bay. It occurs south into James Bay. It breeds on the low islands and here and there on the coasts, and winters in the open water west of the Belcher Islands and probably elsewhere.

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[8] Notes on a collection of birds from Mansel Island, Hudson Bay. Condor 34: 42. 1932.

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